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EXAMINER
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RETTA, YEHDEGA

ART UNIT	PAPER NUMBER
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3622

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05/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/846,823	<b>Applicant(s)</b> DUNNING ET AL.	
	<b>Examiner</b> Yehdega Retta	<b>Art Unit</b> 3622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-97 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

This office action is in response to amendment filed February 15, 2008. Applicant amended claims 1, 10, 28, 33, 39-41, 59-61, 68, 69 and 92. Claims 1-97 are still pending.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 39 and 59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Claims recite the scoring for each user log being responsive to a "frequency of occurrence of the at least one query item identifier in the user log" "a frequency of occurrence of the at least one query item identifier relative to all the user logs and a query weight for that at least one query item identifier in the query".

Applicant's specification teaches as follows:

Based on the supplied query, a list of relevant users 1403 is obtained. In general, this list includes users that have played the specified tracks, or who have played music by the specified artist, and the list is ordered by the relative prominence of the track or artist in the user's play log. In one embodiment, step 1403 is performed by weighting the tracks in the query using one of several weighting strategies. A list of users having play logs that include one or more of the query tracks is obtained using an inverted index in play log database 114. The matching tracks from each play log are weighted according to the selected play log weighting scheme. If a query track is absent in the play log, its weight is zero. The score of the user with respect to the query is

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the sum across all query tracks of the query weight multiplied by the user's play log weight for each track.

The first weighting factor,  $\alpha$ , represents the frequency of the track within the user's play log.

The second weighting factor,  $\beta$ , represents the frequency of the track within all users' play logs.

The third weighting factor,  $\gamma$ , represents a normalizing factor, which serves to reduce the bias for scoring long play logs higher than short ones. Using a normalizing factor, a short relevant play log should score at least as well as a longer play log with general relevance.

[0245] By employing the above-described combination of three weighting factors in generating scores for tracks and artists, and then finding 1506 significantly over-represented elements using a test like the generalized log-likelihood ratio test, the present invention avoids the problems of overstating "best sellers" (i.e. those items that appeal to nearly all users) and overstating co-incident co -occurrence. If a track is a best seller, the second weighting factor will tend to diminish its overpowering effect. In addition, the effect of coincidental co -occurrence is lessened by the  $\gamma$  coefficient.

As being well known in the art, as described for example in Salton et al., "The SMART information retrieval system," 1983, the document weights can be defined as

$$w_{ij} = \alpha \beta X$$

Where  $K_{ij}$  is as defined above,  $i$  is the document and  $j$  is the term.

Query weights  $q_j$  can be defined where  $k_{ij}$  now represents the word counts. Given these document and query weights, the score for each user log is:

$$\text{Score}_j = \sum w_{ij} q_j$$

A score can be generated for each listener's play logs relative to a query, and the highest -scoring listeners can be added to the listener list. A score for a listener with respect to a query is determined by taking the dot product of the query vector and the vector for a listener's play logs. In one embodiment of the present invention, the above-described weighting factors are applied to the vector terms in order to improve the results of the scoring process.

Once play logs have been scored for retrieval using weighting factors, play logs are retrieved, based on the relationships to the query.

The specification however does not disclose scoring for each user log being responsive to a "frequency of occurrence of the at least one query item identifier in the user log" "a frequency of occurrence of the at least one query item identifier relative to all the user logs and a query weight for that at least one query item identifier in the query".

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 39 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recites the scoring for each user log being responsive to a "frequency of occurrence of the at least one query item identifier in the user log" "a frequency of occurrence of the at least one query item identifier relative to all the user logs and a query weight for that at least one query item identifier in the query". It is unclear if applicant is claiming that *the scoring for each user log is responsive* to a frequency of occurrence of the at least one query item identifier in the user log ***also*** responsive to the frequency of occurrence of the at least one query item identifier **relative to all the user logs and a query weight for the at least one query item identifier in the query**. Since the claim recites generating *a log for each user* then it is unclear how the scoring can be responsive to *all the user logs* if there is only one log for each user.

Claims 1, 39 and 59 recite the limitation "relative to all of the user logs". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-14, 17-27, 32, 33, 39, 42-45, 48-59, 62-72, 75-85, 91 and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosken U.S Patent No. 6,438,579.

Regarding claim 1, Hosken teaches accepting, in a computer, item selections detected from a plurality of users; generating, in the computer, a log for each user, each log containing identifiers corresponding to detected user item selections (see '579' col. 3 lines 15-33) and (see '377' page 6 par. 1-5). *Hosken provisional '377 teaches the user profile table (user profile, user profile rating) contains identifying information about music items linked to a user, the information in this table can be provided using explicit rating information provided by the user or through implicit observation by the system based on user's actions (see also fig. 1);* accepting, in the computer, a query including at least one query item identifier; scoring, in the computer, each of the user logs, the scoring for each user log being responsive to a degree of occurrence of the at least one query item identifier in the user log, so as to generate user log score for each user log based exclusively on detected user item selections and the at least one query item (see '579' col. 12 line 35 to col. 13 line 6). *Hosken '377 also teaches accepting item selection (user choosing an item); generating user log (profile based on implicit and explicit rating data for music provided by users) containing identifiers (vectors) corresponding to detected user item (see pp 5 lines 6-20); accepting a query (selection) and scoring (correlating similarity between the user ratings and other users' rating and determining weigh for each item to give rating weight (see pp 11 line 4 to pp. 12 line 6); determining, in the computer at least one result item, responsive to a frequency of occurrence in at least a subset of the scored user logs, so*

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as to discover at least one relationship based exclusively on detected user item selections and the at least one query item identifier in the user log, a frequency of occurrence of the at least one query item identifier relative to all of the user logs and a query weight for the at least one query item identifier in the query (see '579' col. 15 line 10 to col. 16 line 21, col. 16 lines 24-55);

*Hosken '377' also teaches being responsive to a degree of occurrence of the item identifier in the user logs (weight for each item determined by multiplying the correlation with the rating to give the correlated rating weight (pp 8 lines 14-25); determining at least one result item (recommendation) (see pp 10-13 and abstract and fig. 2b to fig. 5).*

Hosken also teaches that the explicit information provided by users provides high-confidence information that can be incorporated into the group and individualized collaborative data. Hosken teaches that implicit and explicit profiling data is used to provide recommendation (see col. 4 lines 44-67). Hosken discloses that the user may explicitly enter music items and ratings or the system may derive implicit ratings of music items based on system-based observations (detected) of user actions and the system making recommendation based on the input (see col. 14 lines 13-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement selected features of Hosken. Omitting Hosken's collection of explicit user profile, by interviewing or surveying users, would cost less to operate the system. Also it would have been obvious to one of ordinary skill in the art to provide recommendation from implicit user profile only to those who are not willing to participate in the interview or survey of Hosken. It is also well settled that the elimination of an element or its functions is an obvious expedient if the remaining elements perform the same functions as before - *In re Karlson*, 136 USPQ 184, 186; 311 F2d 581 (CCPA 1963).

Regarding claims 4-11, Hosken teaches video track or music track, generating track list containing an identifier for each determined result. Hosken teaches recommending music and video and other media content items based on similarity in profile between the user and other users (see '579' col. 12 line 38 to col. 13 line 30, *see '377' page 6 , 12*).

Regarding claims 12 and 13, Hosken teaches accepting selection; input specifying an item purchase by user, provided via web page (see '579' col. 4 lines 11-55, col. 5 lines 20-62, *see '377' page 7 and fig. 3*).

Regarding claim 14, Hosken teaches defining a subset of the scored user logs (see '579' col. 15 line 10 to col. 16 line 21, *see '377' page 10 & 11*).

Regarding claim 17, Hosken teaches wherein accepting item selections comprises receiving input provided by a user via an application for playing tracks (see '579' col. 4 lines 11-15, col. 5 lines 20-62, *see '377' page 7, 12 and fig. 3*).

Regarding claims 18-21, 48-53 and 75-79, Hosken teaches wherein accepting a query comprises receiving a user log containing identifiers for a user's item selections; wherein accepting a query comprises receiving a first search term, generating, in the computer, a second search term containing an identifier for each determined result item; providing, in the computer, the second search term as input for a search engine; and adding, in the computer, the second search term to a searchable portion of a document associated with the first search term; periodically uploading the generated log (see '579' col. 8 lines 38-65, *see '377' page 8 & 9*).

Regarding claims 22-27, 54-58 and 80-85 Hosken teaches outputting advertisement related to the determined result (see '579' col. 8 lines 38-53, col. 16 lines 24-53, *see '377' page 7 & 12*).



Regarding claims 32 and 33, Hosken teaches deleting item selected by user from the determining at least one result, ranking the result responsive to the degree of significance (see col. 16 lines 24-53, *see '377' page 12*).

Claims 39 and 59 are rejected as stated above in claim 1.

Claims 42-45 and 62-69 are rejected as stated above in claims 4-11.

Claims 70 and 71 are rejected as stated above in claims 12 and 13.

Claim 72 is rejected as stated above in claim 14.

Claims 91 and 92 are rejected as stated above in claims 32 and 33.

Claims 2, 3, 28-31, 34-38, 40, 41, 60, 61, 86-90, 93-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosken U.S. Patent No. 6,438,579 further in view of Lazarus U.S. Patent No. 6,430,539.

Regarding claims 2, 3, 40, 41, 60, 61 and 86 Hosken does not explicitly teach significance of occurrence being determined by a log of likelihood ratio analysis or a substantial equivalent of a log of likelihood ratio analysis, it is taught by Lazarus (see col. 22 line 19 to col. 25 line 53). Lazarus teaches use of a log of likelihood ratio or an equivalent analysis to determine significance of occurrence (see abstract, col. 4 lines 24-67 and col. 39 lines 13-53). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use Lazarus's predictive model in Hosken's recommendation system since a log of likelihood ratio or equivalent ratio analysis overcomes the problem of small count situations and have much better small count behavior while at the same time retaining the same behavior in the non-small count regions as taught by Lazarus (see col. 24 line 44 to col. 25 line 38).

Regarding claims 28-31, 34-38, 87-90, 93-97, Hosken teaches determining a total number of users, each group containing information detected from implicit use behavior, (see fig. 2 (70, 68, 64)); determining a subset of user, determining the items selected or not selected by the subsets and use of correlation algorithm to determine the correlation between the cluster and the user (see col. 15 line 10 to col. 16 line 21). However Hosken failed to explicitly teach the correlation algorithm as a log likelihood ratio, it is disclosed in Lazarus (see abstract, col. 4 lines 24-67 and col. 39 lines 13-53). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to use Lazarus's predictive model in Hosken's recommendation system since a log of likelihood ratio or equivalent ratio analysis overcomes the problem of small count situations and have much better small count behavior while at the same time retaining the same behavior in the non-small count regions as taught by Lazarus (see col. 24 line 44 to col. 25 line 38). Hosken discloses that the user may explicitly enter music items and ratings or the system may derive implicit ratings of music items based on system-based observations of user actions and the system making recommendation based on the input (see col. 14 lines 13-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement selected features of Hosken. Omitting Hosken's collection of explicit user profile, by interviewing or surveying users, would cost less to operate the system. Also it would have been obvious to one of ordinary skill in the art to provide recommendation from implicit user profile only to those who are not willing to participate in the interview or survey of Hosken.

Claims 15, 16, 46, 47, 73 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosken U.S. Patent No. 6,438,579 further in view of Ward U.S. Patent No. 6,526,411.

Regarding claims 15, 16, 46, 47, 73 and 74, Hosken '377 failed to explicitly teach monitoring user behavior by detecting user input ... Ward teaches selecting tracks based on users profiles including the user dislikes for a particular item either by skipping or through rating (see col. 8 lines 20-40 see also provisional 60165727, page 2-5). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention was made to modify Hosken's recommendation system by making the selection of tracks based on how often the track was played or based on when the last time the track was played, as in Ward's, in order to improve the recommendation system by refining user preference.

***Response to Arguments***

Applicant's arguments filed February 15, 2008 have been fully considered but they are not persuasive.

Applicant now argues that the portions of Hosken '579 that admittedly disclose more than the '377 Hosken provisional cannot claim the benefit of the '377 Hosken provisional, and these portions of Hosken '579 cannot be relied upon to reject the claims of the present invention. Examiner however clearly indicated the support for the claimed invention in both the '377 provisional and the Hosken '579. If Applicant feels that the Examiner failed to indicate any of the claimed feature, either in the '377 or '579, should indicated which feature is not taught or disclosed in Hosken '377 or '579. Applicant states that the Examiner also cited Figure 1 and page 6, paragraphs 1 to 5 in her rejection of Claims 1, 39, 59 and the Examiner is respectfully requested to clarify whether she is citing the portions of the '377 Hosken provisional against Claims 1, 39 and 59, and to further clarify whether she considers page 6, paragraph 1 to 5 of the '377 Hosken provisional to provide the requisite showing of § 112 support for col. 3, lines 15 to

33 and col. 14, lines 13 to 20 of Hosken, and provide similar clarification for each reference to the '377 Hosken provisional made by the Examiner in her grounds for rejection of the other claims, should the Examiner maintain her current rejection. Examiner would like to make it clear that according to MPEP “The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application); the disclosure of the invention in the prior application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112”. “Accordingly, the disclosure of the prior-filed application must provide adequate support and enablement for the claimed subject matter of the later-filed application in compliance with the requirements of 35 U.S.C. 112, first paragraph”. “Claiming the Benefit of Provisional Applications Under 35 U.S.C. 119(e), the written description and drawing(s) (if any) of the provisional application must adequately support and enable the subject matter claimed in the nonprovisional application that claims the benefit of the provisional application. For a nonprovisional application to be afforded the priority date of the provisional application, “the specification of the provisional must contain a written description of the invention and the manner and process of making and using it, in such full, clear, concise, and exact terms,’ 35 U.S.C. § 112 ¶1, to enable an ordinarily skilled artisan to practice the invention claimed in the nonprovisional application”. Applicant asserts that “(i)t is clear from MPEP § 2136.03(III) that the burden lies with the Examiner to provide a showing.”

There is no requirement for the provisional and the nonprovisional application to match word by word or page by page. The requirement is that the written description of the provisional application must adequately support and enable the subject matter claimed in the nonprovisional

application and the specification of the provisional application must contain a written description of the invention and the manner and process of making and using, in such full, clear, concise and exact terms to enable an ordinarily skilled artisan to practice the invention claimed in the nonprovisional application.

The Examiner has already indicated adequate support and enablement, in Hosken's '377 provisional, for applicant's claimed subject matter.

Regarding the "Collaborative Recommendation" the Examiner has already addressed it in the previous office action.

Applicant in regard to Claims 34 and 93 states among the features recited therein, is a feature of generating, based on a determined log likelihood ratio, a representation of a relationship between a first item and a second item based on implicit user behavior and in view of the above discussion, it should be clear that any rejection of the claims based on Hosken '579 is improper, and should be withdrawn. Applicant argues that Lazarus does not cure the above note deficiencies of Hosken, and thus the combination fails to teach or suggest all of the elements of the claims rejected based upon a Hosken/Lazarus combination. Applicant states that in view of the above discussion it should be clear that any rejection of the claims in Hosken '579 is improper. Examiner has already addressed the issue in regard to the Hosken. In regard to Ward, applicant asserts that it is necessary to provide a showing, in accordance with 35 U.S.C. § 112, first paragraph, that the subject matter of Ward relied upon in making the rejection is fully supported by the description found in one or more of the provisional applications to which Ward claims priority. The Examiner provides pages 2-5 of Ward's provisional 60165727 for support to the claimed invention.

The Examiner does not agree that the portions of Hosken “579 relied upon to form the rejection lacks enabling descriptive support in the “377 Hosken provisional. Applicant in his argument asserts that remaining portion of Hosken ‘579 relied upon in the Office action are missing a teaching or suggestion of multiple elements of the pending claims, however failed to indicate which multiple elements are not taught or suggested by Hosken.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yehdega Retta whose telephone number is (571) 272-6723. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Eric Stamber can be reached on (571) 272-6724. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YR

/Yehdega Retta/

Primary Examiner, Art Unit 3622